มหาวิทยาลัยมหิดล
Mahidol University

Wisdom of the Land

EGCI486

Image Processing

Course Syllabus

- **Course Code:** EGCI486
- **Course Title:** Image Processing
- **Number of Credits:**
  - 4(4-0-8) Credit (Lecture/Lab/Self-study)
- **Time and Room:**
  - Tuesday and Friday 2.00-3.50 pm., 6272

- **Course Description:**

Introduction to digital image processing, digital image fundamentals, image enhancement in the spatial domain, image enhancement in the frequency domain, color models, image compression, morphological image processing, image segmentation, object recognition.

Objective

There are two purposes of this course:
- Students will be able to understand the concepts of digital image processing.
- Students will be able to gain understanding of computer programming to perform an application of digital image processing.

After completion of this course:
- Students should describe the basic principle of digital image processing.
- Students should be able to apply understanding of the concepts in the digital image processing to design and develop the application of digital image processing.

References

- Digital Image Processing, Gonzalez and Woods, Third Edition, Prentice-Hall, 2010.

- Digital Image Processing using MATLAB, Gonzalez, Woods, and Eddins, Pearson Prentice Hall, 2004.
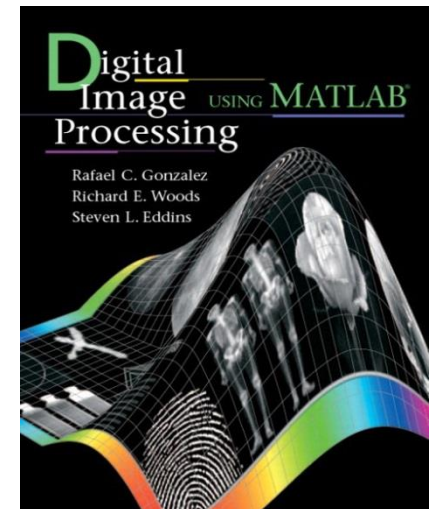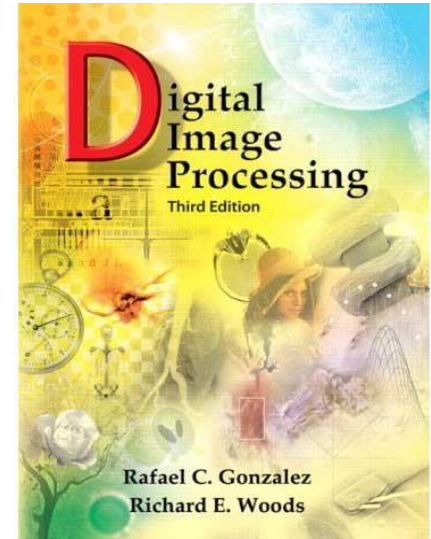
References

- Institute of Electrical and Electronics Engineers (IEEE).

Evaluation

- Student's achievement will be evaluated according to the faculty and university standard, using the symbols: A, B, B+, C, C+, C, D+, D and F.

- Grade based on
  - Quiz, LAB, and Project   50 %
  - Midterm Examination   25 %
 - Final Examination   25 %

Project

- Design, develop and demonstrate an image processing algorithm

- Project group
  - Group of 3 students (strongly recommended)
  - More than 3 students per group will provide catching reason

- Important dates
  - Project proposal due: February 19, 11.59 p.m.
  - Project report and source code: March 24, 11.59 p.m.
  - Project presentation : March 25, 2.00 p.m.

Project Grade

- Project grade based on
    - Technical quality/originality   60%
    - Written report   20%
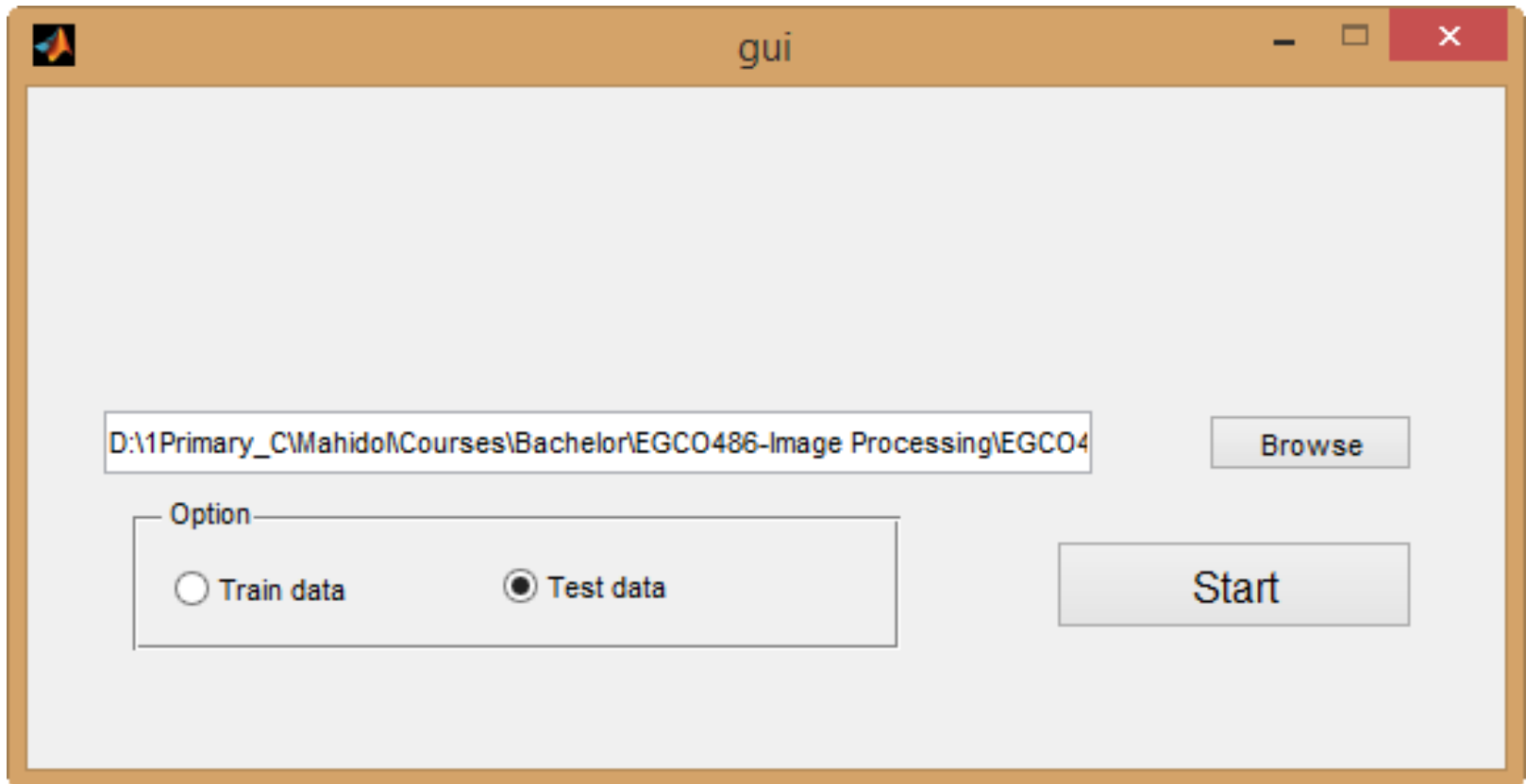   - Presentation and demo   20%

Project Examples

- EGCO486 Project (2013): Movement of moving objects
  - <u>Measure the distance between three moving objects</u>
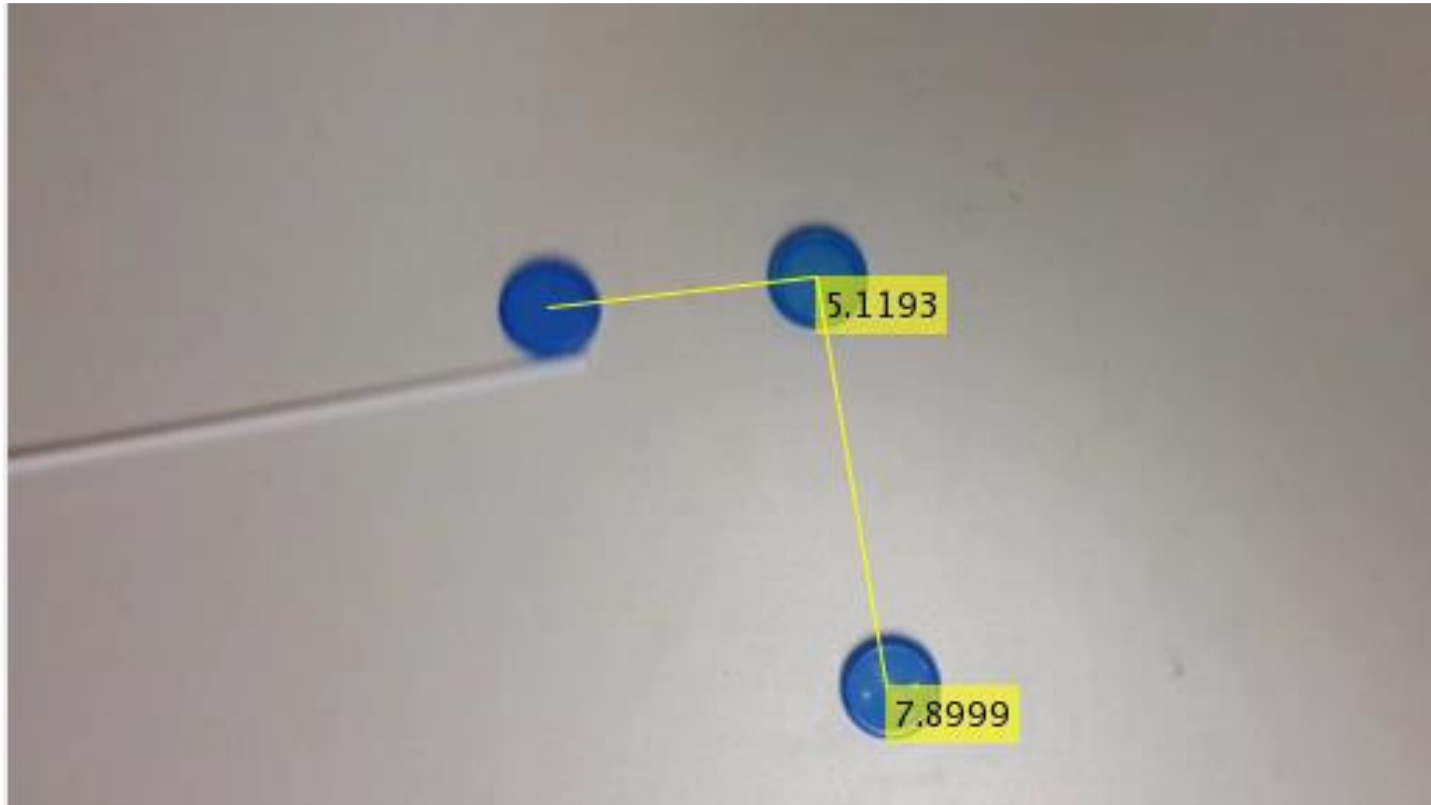
Project Examples

- EGCO486 Project (2013): Detect the characters using the trained character models

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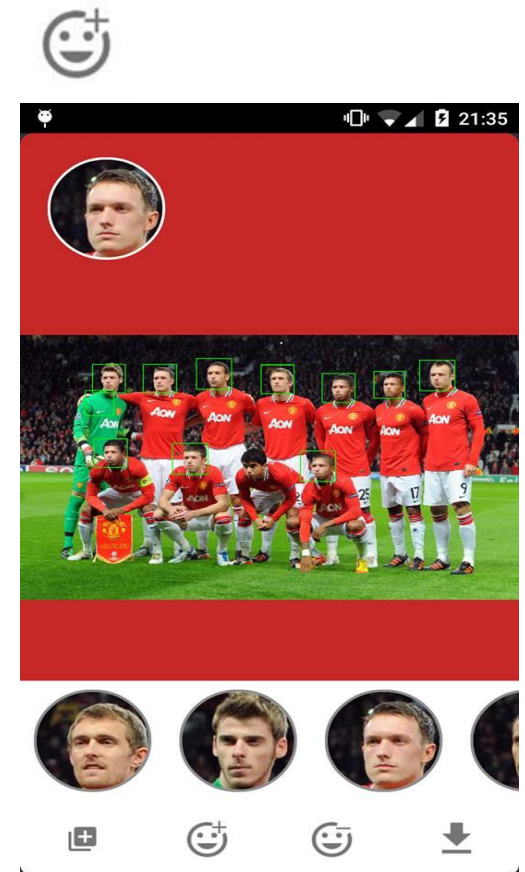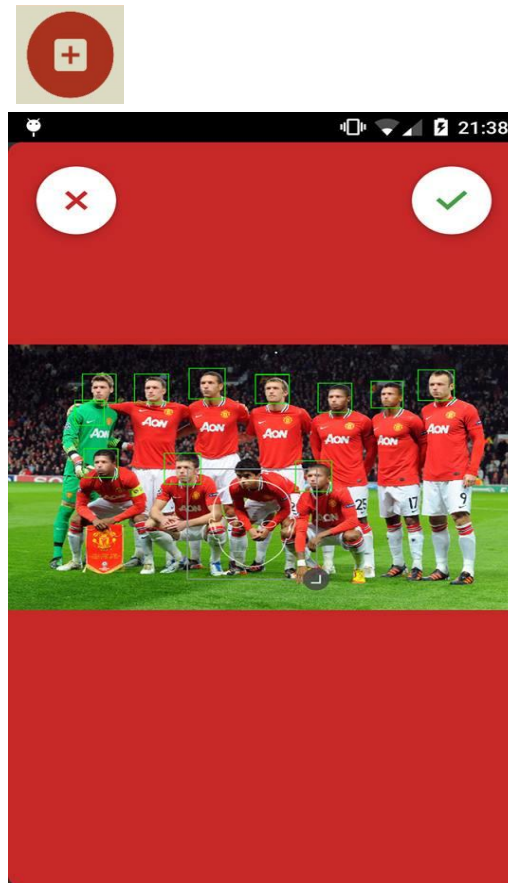
Project Examples

- EGCO486 Project (2014) : Goal-line technology
  - <u>Detect whether the ball has cross the goal line or not</u>

Project Examples

- EGCO486 Project (2014) : Facies in Android
  - Swap the faces on your photo

Project Examples

- EGCO486 Project (2014) : Facies in Android
  - Swap the faces on your photo

Project Examples

- MIS Project (2014) : Human and gun detection
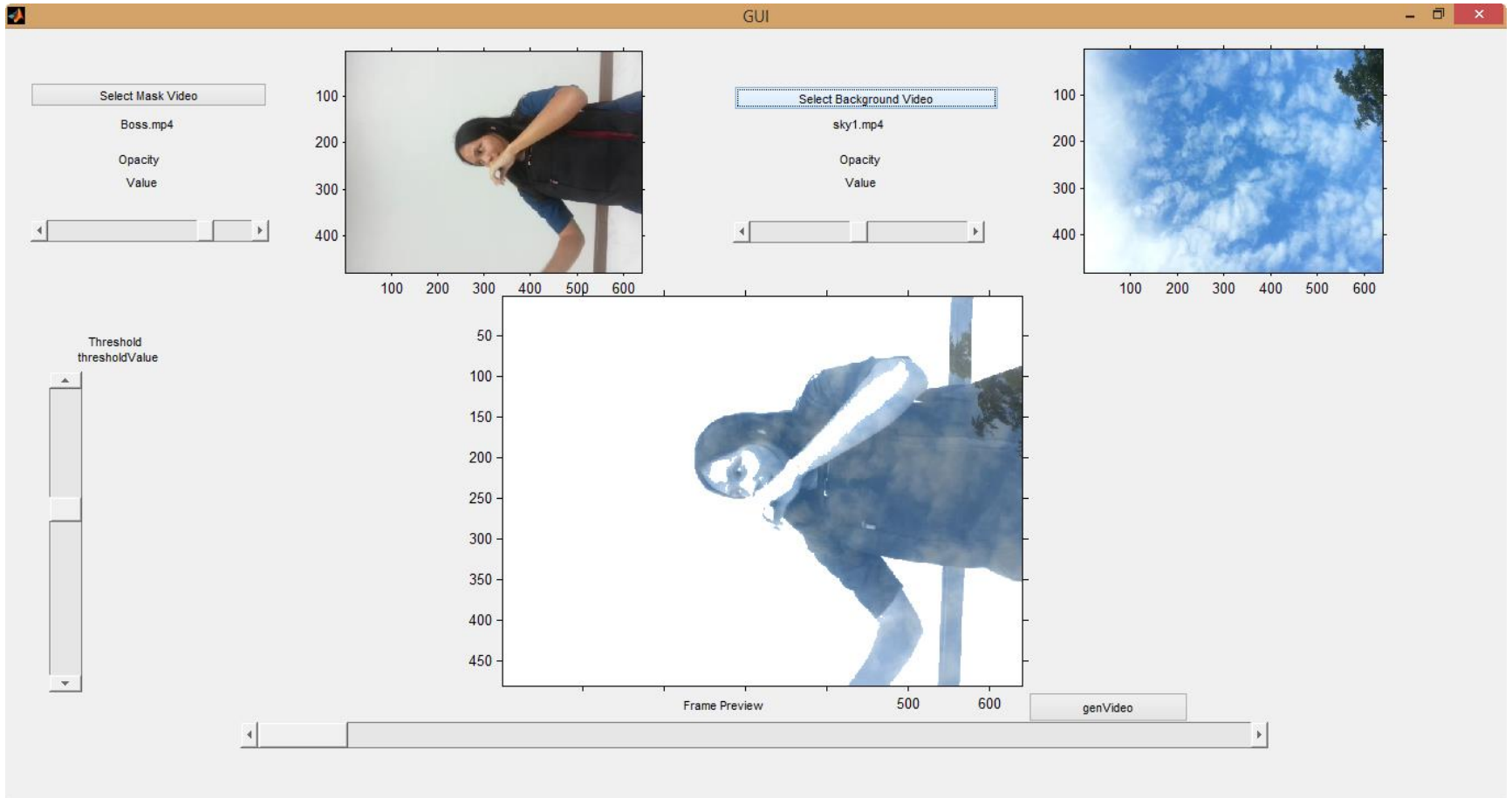 - Detect whether the human was holding a gun or not

Project Examples

- EGCI486 Project (2014-2015) : Automate Clash of Clans Resource Collector

Project Examples

- EGCI486 Project (2014-2015) : <u>Merge two video files into a single file</u>

Project Examples

- EGCI486 Project (2014-2015) : Anti-Aliasing Techniques in Computer Graphics

Project Examples

- EGCI486 Project (2014-2015) : Anti-Aliasing Techniques in Computer Graphics

Lecturers

- Dr. Narit Hnoohom
- Contact :
  Room 6157 (Temporary)
  Department of Computer Engineering,
  Faculty of Engineering, Mahidol University
  E-mail : narit.hno@mahidol.ac.th, send2narit@hotmail.com
  Line ID : iamnarit
- Weekly Problem Session :
  Tuesday and Friday 3:50 - 5:00 p.m.
  (after class or by appointment)

- Mr. Pawarit Akepitaktam
- Contact
  E-mail : palm.people@gmail.com

Image, Information, and Intelligence laboratory

Icube Laboratory
CO-301 Room, Floor 3
Engineering building 2

Consulting Staff :
Dr.Narit Hnoohom
Asst. Prof. Dr.Tanasanee
Phienthrakul
Dr.Mingmanas Sivaraksa

Thanks for your attention